Ventilating Filters - Vandalism Proof

L1.0808 · L1.0809
Connection up to M42 x 2 · Nominal flow rate up to 850 l/min

Description

Application
Ventilation of tanks for hydraulic and lubrication systems and gearboxes.

General
The oil levels in the tanks of hydraulic systems are subject to continuous variation due to temperature changes and the operation of cylinders and pressure vessels. In order to prevent over pressure in the tanks, an exchange of air with the external atmosphere is necessary. By the use of a ventilating filter, the outside air that is drawn in is filtered and the ingress of dust is therefore prevented.

Special features
The ventilation openings are designed that dust on the surface of the tank is not drawn in, and that the ingress of spray and rainwater is largely prevented.

The use in marine applications presents no problem due to the use of synthetic materials and stainless steel.

The patented vandalism proof ventilating filters can only be removed with the special tool supplied. This makes the removal of the ventilating filter or the ingress of dirt via the tank port considerably more difficult.

Design
Flow direction bi-directional (air IN/OUT). The star-shaped pleating of the filter material results in:
› large filter surfaces
› low pressure drop
› high dirt-holding capacities
› long service life

Ordering options / versions
Integrated oil-level dipstick:
A dipstick can be integrated in the ventilating filter for checking the oil level. Therefore, a separate dipstick or an additional opening in the tank is not required.

Double check valves:
By the use of double check valves, the exchange of air between the tank and the environment can be considerably reduced, whereby the ingress of dust is minimized and the lifetime of the ventilating filter can be increased.

With the double check valve, an over-pressure can be created in the tank in order to improve the suction conditions for the pumps. A further advantage is the reduction of spray water ingress and the loss of oil through the ventilating filter.
Vandalism proof version “Standard” (L1.0808):
Ventilating filters in the patented vandalism proof version can only be removed with the special spanner supplied (A/F 47). This makes the removal of the ventilating filter or the ingress of dirt via the tank port considerably more difficult.

Vandalism proof version “Easy Lock” (L1.0809):
Ventilators in the patented “Easy Lock” version can only be removed with the special pin supplied.

Characteristics

Nominal flow rate
Up to 850 l/min (see Selection Chart, column 2)
The nominal flow rates indicated by ARGO-HYTOS are based on the following criteria:

 › Ventilating filters without double check valve: Δp < 0,03 bar
 › Ventilating filters with double check valve: Δp < 0,1 bar for air IN

Connection
Threaded ports according to ISO 228 or DIN 13.
Sizes see Selection Chart, column 6 (other port threads on request).

Filter fineness
2 µm
Tested in a single pass test with ISO MTD

Hydraulic fluids
Mineral oil and biodegradable fluids (HEES and HETG, see info sheet 00.20)

Temperature range hydraulic fluid
-30 °C ... +100 °C (temporary -40 °C ... +120 °C)

Temperature range environment
-30 °C ... +100 °C

Materials
Cap: Polyamide, GF reinforced
Base: Polyamide, GF reinforced
Dipstick: Stainless steel (1.4301)
Spanner: Steel, galvanized
Gaskets: NBR (FPM on request)
Filter media: Composite, multi-layer

Mounting position
No limitation, position on the tank see section Layout

Maintenance
Ventilating filters should be changed at least every 1000 operating hours, or at minimum once a year.
Diagrams

\(\Delta p\)-curves for complete filters in Selection Chart, column 3

**D1** Pressure drop as a function of the flow volume
Air IN/OUT

![Graph D1](image)

**D2** Pressure drop as a function of the flow volume
Air IN

![Graph D2](image)

Pressure drop as a function of the flow volume
Air OUT

![Graph D2](image)

Filter fineness curves in Selection Chart, column 4

**Dx** Filtration ratio \(\beta\) as a function of particle size \(x\) tested in a single pass test with ISO MTD

![Graph Dx](image)

The abbreviation represents the following \(\beta\)-values resp. finenesses:

- **2CL**
  - \(2 \mu m\) Composite
  - 99.5 % efficiency for particles of size 2 \(\mu m\) tested in a single pass test with ISO MTD

For special applications, finenesses differing from these curves are also available by using special composed filter media.
### Selection Chart

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Nominal flow rate</th>
<th>Pressure drop diagram</th>
<th>Filter fineness diagram</th>
<th>Filter surface</th>
<th>Connection A</th>
<th>Cracking pressure air IN</th>
<th>Cracking pressure air OUT</th>
<th>Dipstick measurement L1</th>
<th>Dipstick measurement L2</th>
<th>Dipstick measurement L3</th>
<th>Symbol</th>
<th>Weight</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>cm²</td>
<td>bar</td>
<td>bar</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>g</td>
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<tr>
<td>L1.0808-00</td>
<td>850</td>
<td>D1/2</td>
<td>2CL</td>
<td>203</td>
<td>M42 x 2,0</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>140</td>
<td>with spanner AF 47</td>
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<tr>
<td>L1.0808-53</td>
<td>550*</td>
<td>D2/3</td>
<td>2CL</td>
<td>203</td>
<td>M42 x 2,0</td>
<td>-0,03</td>
<td>0,20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>160</td>
<td>with spanner AF 47</td>
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<td>-</td>
<td>2</td>
<td>160</td>
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<tr>
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<td>-</td>
<td>2</td>
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<td>203</td>
<td>G¾</td>
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<td>G¾</td>
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<td>203</td>
<td>G¾</td>
<td>-0,03</td>
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<td>160</td>
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</table>

*Δp < 0.1 bar for air IN

**Remarks:**
The ventilating filters listed in this chart are standard filters. If modifications are required, e.g., with integrated dipstick or oil separator, we kindly ask for your request.
Dimensions

Version with thread M42 x 2
eye R2.5 / hole Ø2
Fixing chain (length 17 cm)
on request

Recommended port sizes

Spanner size
(special wrench, supplied with L1.0808)

Measurements

<table>
<thead>
<tr>
<th>Type</th>
<th>A*</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<td>16</td>
<td>48</td>
<td>45°</td>
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</tbody>
</table>

* The thread dimensions do not exactly conform to the DIN ISO standard thread (functioning with the DIN ISO standard thread is guaranteed)

Symbols

1

2
Sizes
The determining factor for selecting the size is the maximum over / under pressure allowed in the container. For versions without double check valves, the initial pressure drop with a clean air filter should not exceed 0.03 bar. For versions with double check valves, the initial pressure drop for air IN with a clean air filter should not exceed 0.1 bar.

Filter fineness
In the ideal case, the fineness of the ventilating filter matches the fineness of the system filter (see also CETOP RP 98 H). By the use of filter fineness 2 CL the ingress of dust into the tank is effectively reduced.

Mounting
The ventilating filter should be mounted in a low-dust area of the machine and not in depressions in which water can collect. For mobile use, the ventilating filter is to be mounted on the tank such that neither splashing oil from the inside nor spray water from the outside can reach the area of the ventilation opening.

Double check valves
By the use of double check valves, the exchange of air between the tank and the environment can be considerably reduced, whereby the ingress of dust is minimized and the lifetime of the ventilating filter is increased. With the double check valve, a predefined level of pressure can be created in the tank in order to improve the suction conditions for the pumps. The valve opening pressure required for the ventilating filter can be approximately determined with the ideal gas equation depending on the following system characteristics:
- differential volume
- volume of oil in the system
- volume of air in the tank
- operating temperatures
Calculation tool available.

Quality Assurance

Quality management according to DIN EN ISO 9001
To ensure constant quality in production and operation, ARGO-HYTOS filter elements undergo strict controls and tests according to the following ISO standards:

ISO 2941 Verification of collapse/burst pressure rating
ISO 2942 Verification of fabrication integrity (Bubble Point Test)
ISO 2943 Verification of material compatibility with fluids
ISO 3968 Evaluation of pressure drop versus flow characteristics
ISO 16889 Multi-Pass-Test (evaluation of filter fineness and dirt-holding capacity)
ISO 23181 Determination of resistance to flow fatigue using high viscosity fluid

Various quality controls during the production process guarantee the leakfree function and solidity of our filters.

Illustrations may sometimes differ from the original. ARGO-HYTOS is not responsible for any unintentional mistake in this specification sheet.